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## THE CAUSES AND THE PREVENTION OF TRAUMATISM IN SCHOOL CHILDREN IN PHYSICAL EDUCATION AND SPORTS CLASSES

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### Abstract

Traumatism of schoolchildren in physical education and sports, according to questioned teachers, has assorted reasons. The main ones are: violation of discipline by students, failure to observe safety rules, inept insurance and self-insurance, unsatisfactory technical condition of sports equipment and places for physical culture and sports. The most traumatic means of physical education teachers consider team sports games (soccer, handball, basketball), during which it is possible to injure hands and feet with hard drops on the ground or collisions with rivals, blowing the ball into the face or body. Long-term pedagogical experience in school and analysis of publications of specialists studying the problems of injuries in children and young people make it possible to assert that in connection with a significant number of injuries in schools in different countries, it is necessary to improve its prevention and improve the safety of students' life and health in teaching and educational The process, in particular, in physical education classes and sports sections of schools. It is necessary to improve the effectiveness of training future physical education teachers in higher education institutions on the prevention of injuries in classes and sports sections, where various means of physical training and sports are used, to be able to monitor the technical condition of physical culture equipment and equipment, sports objects for physical education and sports, to teach students The methods of insurance of children and youth in classes and non-class sports.

**Key words:** traumatism, prevention, pupils, school, lesson, physical education, sport.

Едуард Вільчковський, Володимир Пасічник. Причини травматизму школярів та його профілактика на заняттях із фізичної культури й спорту. У статті розкрито актуальну проблему виявлення причин травматизму серед школярів та його профілактику на уроках фізичного виховання й спортивних секціях. Проаналізовано види, характер, причини випадків травматизму в дітей та учнівської молоді під час занять фізкультурою й спортом. Установлено найбільш травмобезпечні засоби фізичної культури, а також основні причини, які можуть спричинити виникнення травм у школярів: порушення дисципліни, недотримання правил безпеки, невдале страхування учнів під час виконання складних для них вправ, незадовільний технічний стан спортивних приладів та міст занять фізкультурою й спортом та ін.

**Ключові слова:** травматизм, профілактика, учні, школа, урок, фізичне виховання, спорт.

Едуард Вильчковский, Владимир Пасичник. Причины травматизма школьников и его профилактика на занятиях физкультурой и спортом. Травматизм школьников на занятиях физкультурой и спортом, по мнению анкетированных учителей, имеет различные причины. К основным из них относятся нарушения дисциплины учащимися, несоблюдение правил безопасности, неумелая страховка и самостраховка, неудовлетворительное техническое состояние спортивных снарядов и мест занятий физкультурой и спортом. Наиболее травмоопасными средствами учителя физического воспитания считают командные спортивные игры (футбол, гандбол, баскетбол), во время которых возможно травмирование рук и ног при жестких падениях на площадку, столкновениях с соперниками, ударах мяча в лицо или туловище. Многолетний педагогический опыт работы в школе и анализ публикаций специалистов, изучающих проблемы травматизма у детей и молодежи, позволяют утверждать, что в связи со значительным количеством случаев травматизма в школах различных стран следует улучшить его профилактику и совершенствовать методику безопасности жизни и здоровья учащихся в учебно-воспитательном процессе, в частности на уроках физического воспитания и спортивных секциях. Необходимо повысить эффективность подготовки будущих учителей физического воспитания в высших учебных заведениях по вопросам профилактики травматизма на уроках и спортивных секциях, где используются различные средства физической культуры и спорта, уметь контролировать техническое состояние физкультурного оборудования и инвентаря, спортивных объектов для занятий физкультурой и спортом, учить студентов приемам страховки детей и молодежи на уроках и внеклассных занятиях спортом.

**Ключевые слова:** травматизм, профилактика, учащиеся, школа, урок, физическое воспитание, спорт.

**Introduction.** One of the most important teacher's tasks of physical education is a regular care for the safety of student's health and their lives during the lessons and extracurricular activities in physical culture

and sport. It should be noted that almost all secondary schools around the world by the number of injuries among students take the first place in physical training. Children's and young people traumatism in schools, at home, during sports training and competition, physical recreation in recent years greatly increased.

For example, according to the Ministry of Education in Poland annually 115–140 thousand students are injuries in school, including heavy degree 1000–1500, which require long-term hospitalization or are cause of disability and around 70–120 deaths. Much of the injured children are in grades 1–6 (szkołapodstawowa). According to statistics the injury pupils are divided: over 30 % in gyms, 20 % playgrounds, 21 % – in the corridors and stairs schools near 29 % – on lessons in other subjects (chemistry, labor, biology), excursions and other places [10].

In this age period (6–13 years) children have greater mobility, they have the advantage of excitation over inhibition (not curb their emotions), low concentration, lack of motor experience, the propensity to gaming or intense physical effort despite the fatigue, inability against 'objectively assess the risk during exercise or participate in games, rapid mood changes, finding new (interesting) experience for themselves and others.

Researches, which were conducted on determining the causes of injuries of students in physical education classes and after-school classes in physical culture and sports have found that most injuries occur in students during moving and team sports (football, handball, basketball) –53,8 % ; 36,6 % – with exercises in gymnastics (for devices) and acrobatics, 3,8 % – exercises in athletics; 5,8 % – in the implementation of other means of physical training (swimming, skiing, skating) and hiking. [8]

There is also a tendency to more injuries among boys than girls in all classes of secondary schools. In adolescence from 10 to 14 years old boys are three times more accidents than girls of this age. There is also increasing number of injuries among students 11–15 years than in junior and senior classes, of which 28% require medical care [5; 9].

**The goal of the research** is to identify the causes of injuries of pupils at lessons of physical education and sports clubs, and develop recommendations for its prevention.

**Discussion and the results of the study.** We know that injuries students in physical education can take place in the gym, on the court or stadium, hiking, swimming pool, that is, where they held lessons or classes of sports sections. Unfortunately the consequences are serious injuries for all children's and young people lives and even lead to their disability.

The sources of various injuries are different and they can be a combination of several reasons. Therefore, need a comprehensive and professional analysis of each case, which will make them more effective prevention [1].

Considering the limited scope of this publication is difficult to analyze in detail the causes of injuries during using different ways of physical culture and sports by teachers in the educational and extra-curricular sports and mass work with children and pupils. Let's consider the most common causes of injuries of students, in our view, in different organizational forms of physical education:

- Uncoordinated way the arrival of students on physical education classes and return them to the locker room.
- Lack of clear organization of lessons, sectional studies of physical culture and sports.
- Failure preparation of athletic equipment, inventory and necessary facilities for physical education and sports, unconformity of clothes and footwear for this type of study.
- unsystematic checking of athletic equipment and inventory due to their safety for students. The conducted survey of teachers of physical education at postgraduate courses found that 30,8 % of respondents believe that it is one of the major reasons that affect the possibility of injury of students (failure surface playgrounds, running tracks –covering them by asphalt or grass, insufficient area of gyms, lack of additional space for hiding gymnastic equipment and inventory to release space for games, not properly equipped place for landing after jumps and so on).
- the lack of «warm-up» (performance of general exercises in the preparatory part of lesson) or bad their selection, especially in the after-school sectional lessons.
- wrong division of students into subgroups during lessons (main part) or lack of distribution at all.
- placement of students too close to heaters (in the hall) or other traumatic things (especially during sports games and mobile).
- a bad way to carry athletic equipment and inventory.
- indiscipline of students during the lessons or extracurricular physical education and sport.
- incomprehensible way to exercise for students because of a bad explanation by teacher. Therefore, they do it by intuition and it can lead to injury.

– reluctance to do offered exercises if students do not have the proper motivation and they are under strict pressure of teachers, it can lead to injuries.

– Excessive or too low temperature, humidity during class on the playground or in the hall.

– Lack of insurance or inept when performing difficult or dangerous exercises for students.

– Insufficient aware with safety rules by students and self-insurance in the classroom, in which the various means of physical culture and sports (gymnastics, athletics, sports, swimming, winter sports, etc.).

– Fear of students during performing complex or unfamiliar exercise. Some lose his coordination and concentration at the moment, not objectively view the situation on the proper execution of motor acts.

– Unsatisfactory state of health and physical fitness of students (especially those relating to preparatory medical group).

– The absence or irregularity of medical control of health and physical development of students.

– Unhygienic manner of pupils' private life. Inadequate and irregular meals, limited time for sleep and rest, overloading with work at home, a negative psychological climate in the family.

– Senior pupils may be regular smokers, take drugs and alcohol and suffer from mental health problems such as aggression, regular stress, depression, difficulty with logical thinking, poor psycho-physical endurance, etc. The above-mentioned shortcomings can affect directly or indirectly the safety of pupils during physical education classes. Taking into consideration the own teaching experience and analysis of publications of native and foreign authors, the recommendations may be singled out to prevent pupils from being injured during physical education classes and extracurricular sporting activities.

It is extremely difficult for a teacher to predict all the cases related to injuries. However, we should influence pupils' behavior, and guarantee them safe motor activity and psychophysical development. Janusz Korczak, who is a famous Polish educator, says: «Kids, just like adults, want to be healthy and strong, but they do not know how to do it, if they are not told and helped. There is just no need to make them afraid and prohibit a lot» [4].

Injury prevention foresees its obligatory probability while students perform several types of exercise that are recommended by physical training program for each class. The most predictable exercises are the ones where there is no direct contact of a student with a competitor such as gymnastics, acrobatics, athletics, volleyball, swimming, ski training. While performing these exercises, the psycho-physical fitness of a pupil is of particular importance which makes it possible to perform the proposed exercises more accurately and greatly reduces the risk of injuries.

It is difficult for a teacher to predict injuries that can occur when pupils participate in dynamic mobile games and team sports such as football, handball, basketball, which are often held on the playground.

The use of a variety of physical education and sports means during various forms of pupils' physical education require the use of specific methods of injury prevention. However, there are general requirements for all classes of physical education or sections, regardless of their type.

The clear, methodically competent organization of physical education classes and extracurricular sporting activities is the most effective factor for injury prevention of children and youth. Therefore, a teacher has to determine the content of each organizational form of pupils' physical education, dosage of proposed remedies, the methods of pupils' organization in the major part of a class, the number of sports equipment needed for optimal motor density of classes. All this relates to operational planning, that is the thorough preparation for conducting of each physical education class or section.

The responsibility of the teacher for the safety of students starts from the beginning of these classes to students' exit from the locker room after the conducted lesson. It is necessary to calculate the transition of students from the classroom to the locker room because there might be another group of students that has a previous class there. They should know how to behave and comply with hygiene requirements in the locker room. There is a need to make pupils come for a lesson in time, and correspondingly to the next lesson.

While formulating the tasks for the lesson, a teacher should remind students about safety rules while performing proposed exercises (in athletics, gymnastics, ski training, swimming, etc), if it is necessary. The warming-up, that is a set of general exercises, must be held in the preparatory part of the class to get pupils' organisms ready for the exercises that are characterized by more complex coordination and physical exercise movements. According to their proportionment and complexity, these exercises should correspond to the anatomical and physiological characteristics and physical fitness of each age group of pupils (their gender should be taken into consideration as well).

Preventive education, as a mandatory activity of a teacher, is aimed at preventing injuries among pupils and it should cover not only the sphere of didactics, but also the entire system of pupils' physical

education. What needs to be done in the course of every class is to make students submit to discipline and realize the possible hazards that may happen when the rules of behavior are violated, the requirements and regulations of instructions are not complied. The students should be informed about the usage of sporting equipment, the rules of sporting games, etc.

It is necessary to form pupils' skills for safe behavior and objective self-assessment of risk while performing various exercises, winter sports (skating, skiing); control their impulsiveness and emotions; establish positive communicative relationship with their peers (according to their age, psycho-physical fitness, traits of character).

Teachers need to be familiar with the social structure of each class and the level of pupils' physical fitness. It is necessary to distribute the pupils into subgroups properly in order to perform the proposed exercises and also to use the individual approach in the educational process of physical education.

Questioning of physical education teachers allowed us to obtain the following information: 36, 2 % of respondents note that in the course of classes there are multiple cases of pupils' aggression, especially during sporting games. Player's anger, that may be uncontrolled, and which sometimes manifests itself in the shot, punch or kick of an opponent, can lead to injury. Therefore, in such cases, the teacher should react to such brutal manifestations, rage, rudeness, the use of unauthorized techniques, etc; and apply appropriate disciplinary measures to educate pupils' respect to their opponents.

Injuries quite often occur while sporting games are performed in the secondary and senior school, especially when racing championship between teams of school classes is organized. In this case, the pupils try to gain victory at any price and it considerably increases the risk of injury. Moreover, the rules of the different aspects of a sporting game are not well-known to all the pupils. The certain sticking to these rules prevents some players from being aggressive and restrains misunderstanding between them. Impartial refereeing also helps to meet «clean game» requirements [3].

Teachers should pay constant attention to the technical condition of sports equipment, which is used in the course of physical education classes and extracurricular sporting activities. Teachers should immediately remove the damaged sporting equipment and prevent pupils from using it.

Athletics: kernel disks, spears, starting blocks, athletics barriers, high jump risers, the state of the race tracks, the place of landing after the jumps.

Sports Games: football and handball gates, basketball shields and rings, studs for the volleyball nets, conditions of the playgrounds.

Gymnastics: gymnastic equipment (bars, cross-beam, balance beam, rings, transom, pommel horse, gymnastic bridge, climbing rope), mats, gymnastic benches and ladder, wall gymnastics and others.

Winter equipment: skis, sticks, skates, shoes.

Locker rooms and showers: bench seats, wardrobe, shower (tap water submission), water drain.

Some teachers in the gym and on the court set their own equipment (training simulators) for physical training. In particular, the «obstacle course» gymnastic equipment (for climbing, broad jump, the development of certain motor skills, etc.), risers with rings for throwing objects at the target and others. Therefore, we must strictly adhere to safety rules when performing exercises on this equipment. It worth paying students' attention to the state of the sports fields surface, race tracks, preparing the city for the high and broad jump taking a long run (runway, landing pit). If necessary, remove promptly fixed flaws.

The results of the questionnaires, to the teachers of physical training, on this subject states that only 12 % of them, those with the teaching experience up to 5 years, regularly check the technical condition of athletic equipment; 12,1 % – accordingly, up to 10 years of experience of working in school and 28% of teachers, who have teaching experience over 20 years [6].

There is also a danger while teaching students new exercises that can, in case of improper execution, lead to injuries (jumping, throwing, gymnastics and acrobatic exercises, downhill skiing, some elements of sports games and so on.). Therefore, students must get acquainted with the methods of self-insurance and focus their attention on the proper execution of the basic movement elements. For example, in the broad jump taking a long run softly on bent legs; while performing forward somersaults in acrobatics – press chin to the chest and make circular back; while sinking from the slope – bend the knees slightly, hands drop down, keep the stick parallel to the surface of the snow and others.

Teacher should have the appropriate knowledge and skills to provide first aid to students in case of injury, and give them the necessary knowledge on these issues in case they are injured during separate recreational physical training and sports outside the school.

In secondary schools of certain countries, special subjects, concerning the safety of pupils in education institutions, in everyday life and in case of possible emergencies in their region or country, are introduced. For example, in Poland the main direction in the education of students regarding their safety involves the following aspects: the integrated lessons, where the teacher informs the children the basic knowledge of the security in their daily lives, are delivered in elementary school (grades 1–3). In middle school (grades 4–6), educational program regarding the students' safety is considered while teaching different subjects: chemistry, geography, biology, labor training, physical education, depending on the lesson's topics, associated with the healthcare and prevention students' injury. In the gymnasiums, these questions are considered within the course – «Civil Defense».

Besides schools, the issues related to the safety of children and youths are considered by various social organizations (sports, travel, harcerski etc.). Educational activities are arming students with competence in making optimal decisions in case of emergencies that threaten their lives and health [7].

In the USA safety education for children and youths has the following areas:

1. Creating of a social environment that supports the safety and reduces the risk of pupils injury.
2. Ensuring appropriate conditions for safe physical environment in school and on its territory.
3. Conducting educational programs among students in order to maintain health (valueology) and their security.
4. Ensuring the safety of students during physical training and sports lessons and other forms of motor activity in school.
5. Providing students with the necessary knowledge on safety through systematic consultations with doctors, psychologists and social workers.
6. Setting up clear rules for student behavior in the case of emergency, as well as assisting all staff members in school (students, teachers, maintenance staff), if it is necessary in such cases.
7. Integration of school activity, parents and local authorities (region, city) for the prevention of injuries and violence among students.
8. Training staff members in school regarding the issues of safety and injury prevention among students[2].

**Conclusions.** Questionnaire, conducted to the teachers of physical training by academics from different countries, indicate that the cases of students injuries during the classes and after-school classes of physical education and sports have a broad palette. To the main reasons they include: misconduct of pupils, breaking safety rules, improper insurance and self-insurance during the exercise, poor technical condition of sports equipment and places for physical education and sports.

Teachers consider that the most dangerous means of physical education are team sports games (football, handball and basketball), during which there is a possibility to damage the upper and lower limbs when falling or clashes between the rivals, by the ball hit in the face or body etc.

Private long-term study of this problem and generalization of experts research concerning children and youths injuries, enables to presume that due to the large number of the injury accidents in schools of different countries, there is a necessity to improve the means of its prevention and ameliorate the methods of students life safety and healthcare in the process of educational activities, in particular, during the lessons of physical education and in sports sections. It is required to improve the training of future teachers of physical education in higher education institutions regarding the injury precaution during the classes and in sports clubs, where a great variety of means in the sphere of physical culture and sports are applied. It is essential for the students to obtain skills that help to predict all possible school injuries and teaching the techniques of self-insurance during training, extracurricular and independent recreational physical activities.

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